

**IN THE ABSTRACT:**

Please add the abstract as follows:

An architecture for sorting incoming data packets in real time, on the fly, processes the packets and places them into an exit order queue before storing the packets. This is in contrast to the traditional way of storing first then sorting later and provides rapid processing capability. A processor generates packet records from an input stream and determines an exit order number for the related packet. The records are stored in an orderlist manager while the data portions are stored in a memory hub for later retrieval in the exit order stored in the manager. The processor is preferably a parallel processor array using SIMD and is provided with rapid access to a shared state by a state engine.